

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF MISSOURI  
EASTERN DIVISION**

ASARCO LLC,

Plaintiff,

v.

NL INDUSTRIES, INC., *et al.*,

Defendants.

Case No. 4:11-cv-00864-JAR

**DECLARATION OF PAUL V. ROSASCO IN SUPPORT OF ASARCO LLC'S  
RESPONSE IN OPPOSITION TO UNION PACIFIC'S MOTION TO EXCLUDE**

Paul V. Rosasco, pursuant to 28 U.S.C. § 1746, makes the following declaration (the "Declaration") under penalty of perjury.

1. My name is Paul V. Rosasco. I submit this declaration in support of Asarco LLC's Response in Opposition to Union Pacific's Motion to Exclude.

2. I am President and Principal Engineer and a practicing geologist at Engineering Management Support, Inc. I received a Master of Science in Engineering Geology from Colorado School of Mines, and a Bachelor of Science in Geology from University of Oregon. I have 38 years of professional experience including 32 years of experience with all aspects of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and National Priorities List (NPL) site projects. I have worked at over 40 Superfund Sites. My experience includes evaluation of existing data and development of scopes of work; negotiation of scopes of work, administrative orders and consent decrees; implementation and supervision of remedial investigations, feasibility studies, remedial designs, remedial actions, and removal actions; and performance of effectiveness evaluations of operation and maintenance of removal and remedial actions. I have been qualified as an expert by Federal Courts in Oklahoma,

Indiana, Wyoming, Idaho and Colorado where I have provided expert testimony related to the history of ownership and operations, types of operations and units, releases or potential releases of hazardous substances from such operations and units; nature and extent of contamination; remedial technologies, remedial alternatives and the need for and scope of remedial actions; consistency of actions and costs incurred with the National Contingency Plan; and allocation of costs of response actions.

3. I have been retained by Asarco LLC as an expert witness in this matter.

I provided my expert report on January 27, 2014.

4. I provided an opinion on the general history of ownership and operation of the rail lines within St. Francois and Madison Counties. This opinion was based on my review of hundreds of pages of Interstate Commerce Commission documents, Library of Congress railroad maps, and other maps and documents as discussed further below. The majority of these documents consisted of reports and other official documents developed and/or maintained by the federal government, the State of Missouri or other parties. These documents existed long before and are completely unrelated to the litigation in this matter. I reviewed and assembled this information into a narrative summary and map that were included my expert report.

5. I have had previous experience analyzing information on the ownership and operation of different facilities. In a case involving Burlington Northern & Santa Fe, Railway Co., Railyard, Helena, Montana, I reviewed documents and offered opinions in an expert report and at a deposition regarding historic operations at the railyard. I reviewed information related to ownership and operation of the Talache Mine Tailings Site in the Atlanta Mining District, Idaho and provided testimony in U.S. District Court on both past and current owners and operators. For the Bartlesville Zinc National Priorities List Site in Oklahoma, I reviewed and

developed opinions and provided opinions at trial in the U.S. District Court for the Northern District of Oklahoma regarding the history of ownership and operations of a zinc refinery relative to potential sources of release of metals including lead and zinc, the nature and extent of contamination, the scope and costs of remedial actions, and potential cost allocation methodologies. My work on the Fisher-Calo National Priorities List Site, Kingsbury, Indiana matter entailed a review of historic operations at a large industrial complex relative to the sources and nature and extent of contamination and the associated need for and scope of required remedial actions.

6. In order to evaluate potential threats posed by the presence of contaminated railroad ballast within active and abandoned rail lines owned and/or operated or previously owned and/or operated by Union Pacific or its predecessors, it was necessary to identify which rail lines are or previously were owned and/or operated by Union Pacific or its predecessor companies. I had anticipated that this information would be obtained from documents produced by Union Pacific or during deposition of Union Pacific's corporate representatives prior to the preparation of my expert report; however, this was not the case. Therefore, in order to prepare my expert report, I conducted my own evaluations of the ownership and operation of the current and historic railroads and rail lines within the SEMO area. I primarily relied on the following types of documents and information:

- Maps of railroad ownership and operation prepared by various parties such as the Federal Rail Commission (<http://fragis.fra.dot.gov/Apps/GISFRASafety/>) and Rand McNally Corporation that are maintained by the United States Library of Congress;

- Interstate Commerce Commission documents regarding transfer of ownership, mergers and acquisitions of railroad companies and/or specific rail line segments and abandonment of specific rail line segments;
- Reports of historical railroad operations and/or use of chat within the Southeast Missouri Lead District (“SEMO”) area published the Missouri Bureau of Mines and Geology, Missouri Public Service Commission, and the Missouri State Historical Society;
- Reports prepared by other engineering/environmental consultants such as Newfields;
- Union Pacific documents or information contained on the Union Pacific website;
- Historic newspaper reports;
- Exhibits from depositions in this matter that had been completed at the time my report was prepared;
- Other information available on the internet.

I evaluated the validity of the above sources of information primarily through comparison of the results obtained from multiple sources.

7. I visually inspected rail ballasts and embankments of rail lines that Union Pacific Railroad (“Union Pacific”) or its predecessors constructed, owned, operated, and/or abandoned in SEMO. My training and skills as a geologist and my prior experience allows me to identify the difference between the coarse sand and fine gravel typical of chat that was used extensively as railroad ballast in the SEMO area as compared to the coarse gravel and rock that is much less frequently used as ballast in the SEMO area but more typically is used as ballast in other parts of the country.

8. At the time of my site visit to the SEMO area, counsel for Asarco LLC informed me that Union Pacific had denied permission to access its property and perform a visual

inspection of its railroad ballasts. Thus, I visually inspected active Union Pacific right-of-ways from a short distance. Along abandoned Union Pacific rail lines, I visually and physically inspected the rail ballasts for the presence of chat along the alignment. For active rights-of-way, I visually inspected them from the closest point available from public road rights-of-way due to the lack of access to enter the active rights-of-way. I concluded that these rights of way also were constructed using chat based on the absence of coarse gravel or rock and the presence of coarse sand/fine gravel and coloration consistent with oxidation of mineralized materials both of which are indications of the presence of chat. In my opinion, the materials used in Union Pacific's rail ballasts are consistent with chat.

9. In addition to my personal inspections, I also relied on evaluations and analyses performed by other professionals. Information contained in various reports can be compared and the validity of such information can be assessed based on the overall consistency of the information and associated conclusions presented in the various reports. I used this method to derive my opinions regarding the overall history of ownership and operation of the various rail lines, the use of chat as ballast and fill material for the rail lines, and the presence of lead and other metals within the chat ballast materials.

10. I relied on the results of sampling and analyses performed by other professionals. Geologists and hydrologists working at possibly contaminated sites reasonably rely on technical reports and sample analyses performed by other professionals. Often, they do not do their own sampling (*i.e.* repeat the sampling and laboratory analysis performed by others). The validity of a particular set of sample analyses can be assessed through comparison of those results to the results of analyses of samples obtained by other parties. For example, characterization data for specific media, such as rail ballast in this instance, can be compared to other characterization

data for the same media to assist in verifying the results. Use of accepted sample collection and analytical methods and comparison and consistency of the sample results between the various sampling activities and with available published information regarding the nature and composition of the sampled materials, provide a basis for determining the overall validity of a set of sampling results.

11. I commonly rely on maps of sampling locations and only rarely am I provided the actual survey location data. Even when I am provided with specific survey data, I still typically rely on maps of the sample locations prepared by others because the survey information alone is not sufficient to display the locations of the samples. I only utilize the survey data if I determine there is a potential error in one or more of the mapped sample locations or if I decide to collect additional samples from the same locations from which prior samples were obtained.

12. I am familiar with the methodology used to collect and analyze environmental samples including the methods used for collection of soil samples by Asarco in 2013 (“Asarco Sampling”). Based on my review of photographs of the sample sites and discussions with a representative of the consulting firm that collected the samples, it is my understanding that the samples were collected either as surface grab samples from the ballast material or were obtained using hand augers borings to collect samples at depth within the ballast materials. Surface grab samples and hand auger boring samples are each generally accepted methods of collecting samples. In other matters, I have relied on analyses using those methods of sample collection and have used these same methods for collection of samples during my own investigations of other sites.

13. Per the TekLab analytical reports, the samples were analyzed using analytical methods established, published, and approved by EPA including EPA SW-846 Methods 3550C,

5035A, 3050B, 6010B, 7471B, 3005A, and 1312. These are EPA-established analytical methods that are accepted and generally used tests to identify hazardous substances, including metals, present in waste and environmental samples. All of these methods are published by EPA and most of them can be found in an EPA laboratory analytical methods manual, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846). EPA has developed and published these methods to ensure the availability of established, validated methods for the measurements and monitoring needed for the Resource Conservation and Recovery Act program and other EPA programs including CERCLA.

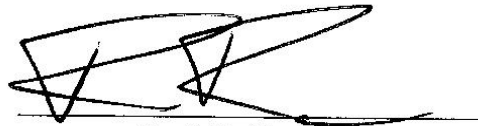
14. I reviewed the analytical laboratory results obtained by ASARCO and compared those data to the results obtained by NewFields for similar samples of railroad ballast obtained from various abandoned rail lines within SEMO. NewFields rail ballast characterization work was performed on behalf of The Doe Run Company at the specific request of U.S. EPA to assess the cadmium, lead and zinc content in ballast material composed of chat and the volume of chat rail ballast material within St. Francois County. The NewFields' rail ballast characterization work was performed in compliance with the 1997 Administrative Order on Consent for Remedial Investigation / Feasibility Study for the St. Francois County Mining Area ("AOC"). The stated overall objective in the AOC is to determine the extent to which hazardous substances have migrated from these areas to surface waters, sediments, soils and groundwater and to assess the risks posed to human health and the environment by such hazardous substances, and to evaluate potential response action alternatives to respond to such hazardous substances. Based on my review, I determined that the results of both sets of sampling activities were comparable and similar supporting the overall validity of the ASARCO sample results.

15. There are no alternate hypotheses as to whether or not chat is present or whether or not chat contains hazardous substances. Either the material present is a coarse sand/fine gravel consistent with the presence of chat or it is not (*i.e.*, it is not a coarse gravel or rock material more typically used as ballast outside of the SEMO area). Similarly, the chat material either contains or does not contain trace metals (*e.g.* hazardous substances). The alternate hypotheses suggested by Union Pacific in its motion do not relate to the presence of chat as railroad ballast or the presence of hazardous substances in such chat ballast but rather relate to the relative actual or potential contributions of trace metals from the SEMO area tailing piles to the environment as compared to those from chat used as railroad ballast. Such an evaluation relates to the relative contributions of the various sources (a factor associated with allocation of responsibility), not to a determination as to whether chat ballast is present along active or abandoned rail lines owned or operated by Union Pacific or its predecessors, whether such chat ballast contains cadmium, lead and zinc, and whether the presence of chat ballast containing such metals poses a threat, or potential threat of release of hazardous substances to the environment.

16. With respect to the response costs previously incurred by Asarco LLC, I reviewed the various Bankruptcy Proofs of Claim and the Bankruptcy Settlement relative to the costs claimed, basis of the claims, and the costs ultimately agreed to between the parties as part of the settlement of the claims. I also reviewed information developed and published by EPA regarding the formation of special accounts, the purpose of those accounts, the amount of funds set aside for response actions for SEMO, and the source of the funds set aside for response actions for SEMO.



Executed on July 28, 2014.



Paul V. Rosasco

**CERTIFICATE OF SERVICE**

I certify that counsel of record who are deemed to have consented to electronic service are being served on July 28, 2014 with a copy of this document via the Court's CM/ECF system.

/s/ Gregory Evans

Gregory Evans